



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

**[Docket No. FAA-2023-2153; Project Identifier MCAI-2023-00688-T; Amendment
39-22611; AD 2023-23-09]**

RIN 2120-AA64

**Airworthiness Directives; Embraer S.A. (Type Certificate Previously Held by
Yaborã Indústria Aeronáutica S.A.; Embraer S.A.) Airplanes**

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all Embraer S.A. Model ERJ 190-400 airplanes. This AD was prompted by a report of unexpected wear on the wing hinge bearing assembly of the aileron surfaces found during the functional test of the aileron control system backlash. This AD requires repetitive inspections of the press-fitted bushings of the wing ailerons for migration and broken sealant, measurements of the distance between the aileron surfaces and hinge fittings, functional checks of the backlash of the wing aileron control system, and all applicable related investigative and corrective actions, as specified in an Agência Nacional de Aviação Civil (ANAC) AD, which is incorporated by reference. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF
PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The FAA must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to [regulations.gov](https://www.regulations.gov). Follow the instructions for submitting comments.

- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-2153; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For material incorporated by reference in this AD, contact National Civil Aviation Agency (ANAC), Aeronautical Products Certification Branch (GGCP), Rua Dr. Orlando Feirabend Filho, 230 – Centro Empresarial Aquarius – Torre B – Andares 14 a 18, Parque Residencial Aquarius, CEP 12.246-190 – São José dos Campos – SP, Brazil; phone 55 (12) 3203-6600; email pac@anac.gov.br; website anac.gov.br/en/. You may find this material on the ANAC website at sistemas.anac.gov.br/certificacao/DA/DAE.asp.

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-2153.

FOR FURTHER INFORMATION CONTACT: Joshua Bragg, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 817-222-5366; email joshua.k.bragg@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2023-2153; Project Identifier MCAI-2023-00688-T” at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to [regulations.gov](https://www.regulations.gov), including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that

you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Joshua Bragg, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 817-222-5366; email joshua.k.bragg@faa.gov. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

ANAC, which is the aviation authority for Brazil, has issued ANAC AD 2023-05-02, effective May 18, 2023 (ANAC AD 2023-05-02) (also referred to as the MCAI), to correct an unsafe condition for all Embraer S.A. Model ERJ 190-400 airplanes. The MCAI states unexpected wear, which was beyond the certification limits of the airplane, was found on the wing hinge bearing assembly of the aileron surfaces during the functional test of the aileron control system backlash. Excessive backlash may result in a limit cycle oscillation phenomenon exposing the surrounding structure and systems to unacceptable vibration levels and reducing the airplane controllability.

ANAC has informed the FAA of corrections to ANAC AD 2023-05-02 that were issued in ANAC AD 2023-05-02, Errata, dated May 18, 2023. The FAA has included these corrections in paragraphs (h)(3) and (10) of this AD and has also addressed typographical errors in paragraphs (h)(4) and (5) of this AD.

The FAA is issuing this AD to address the unsafe condition on these products.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-2153.

Related Service Information under 1 CFR Part 51

ANAC AD 2023-05-02 specifies procedures for repetitive general visual inspections of the press-fitted bushings of the left-hand (LH) and right-hand (RH) wing ailerons for migration and broken sealant; repetitive detailed inspections to measure the distance between the LH and RH wing aileron surfaces and hinge fittings; repetitive functional checks of the backlash of the LH and RH wing aileron control system; and applicable related investigative and corrective actions. The related investigative actions include a detailed inspection of the torque values of the attachments parts on the LH and RH wing aileron surfaces; a general visual inspection of the press-fitted bushings on the LH and RH aileron surfaces, as applicable, for damage (i.e., elongation, scratches, nicks) and rotation or migration (i.e., gap between the bushing flange and lug, or broken sealant around the bushing); a general visual inspection of the sliding bushings of the LH and RH aileron surfaces, as applicable, for damage (i.e., scratches, steps, and dents) and migration of the press-fitted bushing pair; a detailed inspection to measure the outer diameter of the sliding bushings; a detailed inspection to check the inner diameter of the press-fitted bushings of certain aileron fittings; measurement of the outer diameters of the mating sliding bushing and bolt shank; and an operational check of the aileron control system, or a rigging procedure and deflection check, as applicable. The corrective actions include retorquing the nuts and installing cotterpins on the bolts and nuts of the attachment parts on the LH and RH wing aileron surfaces; and replacing the bearings and press-fitted and sliding bushings.

This material is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES section.

FAA's Determination

This product has been approved by the aviation authority of another country and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA is issuing this AD after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Requirements of this AD

This AD requires accomplishing the actions specified in ANAC AD 2023-05-02 described previously, except for any differences identified as exceptions in the regulatory text of this AD.

Explanation of Required Compliance Information

In the FAA's ongoing efforts to improve the efficiency of the AD process, the FAA developed a process to use some civil aviation authority (CAA) ADs as the primary source of information for compliance with requirements for corresponding FAA ADs. The FAA has been coordinating this process with manufacturers and CAAs. As a result, ANAC AD 2023-05-02 is incorporated by reference in this AD. This AD requires compliance with ANAC AD 2023-05-02 in its entirety through that incorporation, except for any differences identified as exceptions in the regulatory text of this AD. Service information required by ANAC AD 2023-05-02 for compliance will be available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-2153 after this AD is published.

FAA's Justification and Determination of the Effective Date

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 et seq.) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for "good cause," finds that those procedures are "impracticable, unnecessary, or contrary to the public interest." Under this section, an agency, upon

finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

There are currently no domestic operators of these products. Accordingly, notice and opportunity for prior public comment are unnecessary, pursuant to 5 U.S.C.

553(b)(3)(B). In addition, for the forgoing reason(s), the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days.

Regulatory Flexibility Act (RFA)

The requirements of the RFA do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because the FAA has determined that it has good cause to adopt this rule without notice and comment, RFA analysis is not required.

Costs of Compliance

Currently, there are no affected U.S.-registered airplanes. If an affected airplane is imported and placed on the U.S. Register in the future, the FAA provides the following cost estimates to comply with this AD:

Estimated costs for required actions

Labor cost	Parts cost	Cost per product
Up to 8 work-hours X \$85 per hour = \$680	\$0	Up to \$680

The FAA estimates the following costs to do any necessary on-condition actions that would be required based on the results of any required actions. The FAA has no way of determining the number of aircraft that might need these on-condition actions:

Estimated costs of on-condition actions

Labor cost	Parts cost	Cost per product
Up to 22 work-hours X \$85 per hour = \$1,870	\$500	\$2,370

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866, and
- (2) Will not affect intrastate aviation in Alaska.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2023-23-09 Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.): Amendment 39-22611; Docket No. FAA-2023-2153; Project Identifier MCAI-2023-00688-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Embraer S.A. (Type Certificate previously held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.) Model ERJ 190-400 airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight controls.

(e) Unsafe Condition

This AD was prompted by a report of unexpected wear on the wing hinge bearing assembly of the aileron surfaces found during the functional test of the aileron control system backlash. The FAA is issuing this AD to address wear on the wing hinge bearing

assembly of the aileron surfaces that could lead to excessive backlash. The unsafe condition, if not addressed, could result in a limit cycle oscillation phenomenon exposing the surrounding structure and systems to unacceptable vibration levels and reducing the airplane controllability.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Requirements

Except as specified in paragraph (h) of this AD: Comply with all required actions and compliance times specified in, and in accordance with, Agência Nacional de Aviação Civil (ANAC) AD 2023-05-02, effective May 18, 2023 (ANAC AD 2023-05-02).

(h) Exceptions to ANAC AD 2023-05-02

(1) Where ANAC AD 2023-05-02 refers to its effective date, this AD requires using the effective date of this AD.

(2) This AD requires replacing Table 01 of ANAC AD 2023-05-02 with Figure 1 to paragraph (h)(2) of this AD; and where paragraph (b)(1) of ANAC AD 2023-05-02 specifies “Within the applicable intervals and limitations established in the ‘Table 01 – Compliance intervals and limitations’ of this AD,” this AD requires replacing those words with “Within the applicable compliance time specified in ‘Table 01 – Compliance Times for Initial Inspections’ of this AD.”

Figure 1 to paragraph (h)(2)

Table 01 – Compliance Times for Initial Inspections		
Airplanes that have accumulated, as of the effective date of this AD, the following flight hours since new (FHSN)	Applicable compliance time, whichever occurs first	
6,000 FHSN or more	Within 750 flight hours after the effective date of this AD	Not applicable

5,000 FHSN or more, but less than 6,000 FHSN	Within 1,000 flight hours after the effective date of this AD	Before the accumulation of 6,750 FHSN
3,000 FHSN or more, but less than 5,000 FHSN	Within 2,000 flight hours after the effective date of this AD	Before the accumulation of 6,000 FHSN
Less than 3,000 FHSN	Within 3,000 flight hours after the effective date of this AD	Before the accumulation of 5,000 FHSN

(3) Where paragraphs (b)(2) and (b)(2)(i) of ANAC AD 2023-05-02 specify “press-fitting bushings” this AD requires replacing those words with “press-fitted bushings.”

(4) Where paragraphs (b)(2)(i) and (b)(3)(i) of ANAC AD 2023-05-02 specify “before the next flight, accomplish the paragraph (c) of this AD after to accomplish the paragraph (b)(4) of this AD” as corrective actions for certain conditions, this AD requires replacing those words with “before the next flight, accomplish paragraph (c) of this AD after accomplishing paragraph (b)(4) of this AD.”

(5) Where paragraph (b)(3) of ANAC AD 2023-05-02 specifies to “measure de distances,” this AD requires replacing those words with “measure the distances.”

(6) All applicable related investigative and corrective actions specified in paragraphs (b)(4)(iii) and (b)(4)(iii)(a) of ANAC AD 2023-05-02 must be done before the next flight after the functional check of the left-hand (LH) and right-hand (RH) wing aileron control system.

(7) All applicable related investigative actions specified in paragraph (c)(4)(ii) of ANAC AD 2023-05-02 must be done before the next flight after the detailed inspection on the LH and RH removed aileron surface, as applicable.

(8) Where paragraph (d) of ANAC AD 2023-05-02 specifies to repeat the inspections “at each 3,000 FH,” this AD requires replacing those words with “at intervals not to exceed 3,000 FH”; and where paragraph (d) of ANAC 2023-05-02 specifies

performing subsequent inspections “after 3000 FH,” this AD requires replacing those words with “within 3,000 FH.”

(9) Where paragraph (d) of ANAC AD 2023-05-02 specifies to “Repeat the inspections and the actions required by the paragraphs (b) and (c) of this AD,” this AD requires replacing those words with “Repeat the inspections required by paragraph (b) of this AD.”

(10) Where paragraph (e) of ANAC AD 2023-05-02 specifies “the paragraphs (b) and (c) of this AD have been complied with” this AD requires replacing those words with “paragraphs (b) and (c) of this AD, as applicable, have been complied with.”

(11) This AD does not adopt paragraph (f) of ANAC AD 2023-05-02.

(12) Although the service information specified in ANAC AD 2023-05-02 specifies returning certain parts the manufacturer, this AD does not include that requirement.

(i) No Reporting Requirement

Although the service information in ANAC AD 2023-05-02 specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(j) Additional AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the International Validation Branch, mail it to the address identified in paragraph (k) of this AD. Information may be emailed to: 9-AVS-AIR-730-AMOC@faa.gov. Before using any approved AMOC,

notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, International Validation Branch, FAA; or ANAC; or ANAC's authorized Designee. If approved by the ANAC Designee, the approval must include the Designee's authorized signature.

(k) Additional Information

For more information about this AD, contact Joshua Bragg, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 817-222-5366; email joshua.k.bragg@faa.gov.

(l) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Agência Nacional de Aviação Civil (ANAC) AD 2023-05-02, effective May 18, 2023.

(ii) [Reserved]

(3) For ANAC AD 2023-05-02, contact ANAC, Aeronautical Products Certification Branch (GGCP), Rua Dr. Orlando Feirabend Filho, 230 - Centro Empresarial Aquarius - Torre B - Andares 14 a 18, Parque Residencial Aquarius, CEP 12.246-190 - São José dos Campos - SP, Brazil; phone 55 (12) 3203-6600; email pac@anac.gov.br; website anac.gov.br/en/. You may find this ANAC AD on the ANAC website at sistemas.anac.gov.br/certificacao/DA/DAE.asp.

(4) You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

Issued on December 14, 2023.

Victor Wicklund,
Deputy Director, Compliance & Airworthiness Division,
Aircraft Certification Service.
[FR Doc. 2023-28335 Filed: 12/26/2023 8:45 am; Publication Date: 12/27/2023]